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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,824	03/22/2006	Matthew J. McMillin	SSW P15US1	4854
37190	7590	05/03/2007		
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EXAMINER				
MCCRAW, BARRY CLAYTON				
ART UNIT		PAPER NUMBER		
3744				
MAIL DATE		DELIVERY MODE		
05/03/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/572,824	Applicant(s) MCMILLIN, MATTHEW J.	
	Examiner B. Clayton McCraw	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- or --Related Art-- because only that which is old or known is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang (US 5,921,104). Chang explicitly teaches a cooling tube system used within an interior of a refrigeration apparatus comprising a plurality of cooling tubes (items 51) disposed within the interior of a refrigeration apparatus (Figure 7), a cooling air generation means (4), an air flow transmission means (6) positioned to receive a supply

of cooling and transmitting the supply of cooling air to a position adjacent a first end (interior portion of air guide near item 62) of the cooling tube (51), the cooling tube having a second end opening to the interior (outer portion of air guide, exposed to refrigerator body, Figures 6 and 7), the portion of cooling air flowing through the second end of the cooling tube (see arrows exiting tube in Figure 6), the cooling air having temperature and volume properties sufficient so as to provide an improvement of gradient temperature within the refrigeration apparatus (col. 5, lines 23-41), wherein the cooling tubes are formed with a straight configuration (see Figure 7, item 51, closest to the top of the page), wherein the cooling tubes are formed with angle-cut configurations (see Figure 7, item 51, closest to the bottom of the page), and wherein the cooling tubes comprise formed cooling tubes (51, note that the existence of tubes in the apparatus inherently means they have been "formed"), and at least one tube (Figure 6) positioned in the freezer portion (1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 3-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 5,921,104) in view of Yoon (US 6,062,037). Chang explicitly teaches the elements of the present invention as described above, but fails to teach a cooling tube comprising a structural part of at least one refrigerator shelf, as well as a cooling tube formed with an air dam configuration. Yoon explicitly teaches a cooling tube comprising a structural part of at least one refrigerator shelf (132) formed with an air dam configuration (134 and 134b). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cooling tubes of Chang with the cooling shelf of Yoon, since providing cooling tubes as a shelf advantageously improves refrigerated air supply and homogeneous refrigeration to the inner contents (col. 2, lines 31-34).

Regarding claim 4, it should be noted that providing the cooling tubes in a freezer environment inherently improves freeze time of items placed on the shelves and in the compartment since this is the exact function that the cooling tubes inherently purport to provide.

Regarding claims 5 and 6, Chang and Yoon teach the elements of the present invention as described above, but fail to explicitly teach an improved freeze time in the range of 5% to 20%. Since Chang and Yoon teach a cooling tube comprising a refrigerator shelf (see above), and cooling is the inherent function of the invention, the

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cooling efficiency is altered to some extent between 1 and 100%. It would have been an obvious matter of design choice to alter the cooling efficiency by 5 to 20%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding claims 7 and 8, Chang teaches the elements of the present invention as described above, but fails to explicitly teach a gradient temperature improvement in a range of 5% and 25%. Since Chang and Yoon teach a cooling tube comprising a refrigerator shelf (see above), and cooling is the inherent function of the invention, the cooling efficiency is altered to some extent between 1 and 100%. It would have been an obvious matter of design choice to alter the cooling efficiency by 5 to 25%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Conclusion


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Choi (US 5,784,895) teaches a refrigerator with air ducts, Jeong et al. (US 5,687,580) teach a refrigerator controlling cool air discharge, and Lee et al. (US 2003/0126881) teach a refrigerator with cooling air passage.

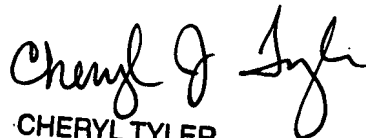
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Clayton McCraw whose telephone number is (571) 272-3665. The examiner can normally be reached on M-F 8:30AM-5:00PM.

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9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


BCM
4/26/2007


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SUPERVISORY PATENT EXAMINER